

REMARKS

Claim 9 has been amended to provide improved antecedent basis. The scope of the claim has not been altered. Claims 9 to 21 remain active in the subject application.

Claim 9 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite. The rejection is respectfully traversed. The application of a vacuum is set forth in the first paragraph after SUMMARY OF THE INVENTION, in the first and second paragraphs referring to Figs. 2a-c and elsewhere by lifter unit 210 which includes the vacuum means. Also, the vacuum means is a part of flipping station 715 as stated in the specification with respect to this element. It is yet further noted that claim 1 of the parent application contains the step of “applying a vacuum...” (Patent No. 6,871,394). Devices for applying a vacuum are so notoriously old and well known that nothing further should be required. Still further, the term “means” has been removed from this claim.

Claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over Grover (U.S. 2,355,643) in view of Smith (U.S. 5,588,797). The rejection is respectfully traversed.

Claim 9 relates to an apparatus for lifting substrates in a semiconductor packaging process. No such type of apparatus is shown in either of the applied references.

Claim 9 further requires a substrate tray with a plurality of depressions and a hole in each depression for coupling to a plate, the substrate tray to hold a substrate in each depression. No such structure or the entire combination as claimed is found in either of the applied references.

Claim 9 further requires a plate with a plurality of protrusions coupled to the substrate tray, each of the protrusions extending through a different hole and maintaining

level or leveling the substrate in the corresponding depression while lifting the substrate concurrently with the other of the plurality of substrates in the other of the depressions. No such structure or the entire combination as claimed is found in either of the applied references.

Claim 9 further requires a lifting device with a plurality of vacuum pads coupled to the substrate tray, the lifting device to attach to the substrates and lift the substrates out of the substrate tray. No such structure or the entire combination as claimed is found in either of the applied references.

Claim 9 further requires a first actuator coupled to the plate, the first actuator to raise and lower the plate and a second actuator to lower and raise the lifting device. No such structure or the entire combination as claimed is found in either of the applied references.

Claim 9 further requires vacuum application apparatus at the vacuum pads to attach the substrates to the vacuum pad. No such structure or the entire combination as claimed is found in either of the applied references.

Claims 10 and 11 was rejected under 35 U.S.C. 103(a) as being unpatentable over Grover and Smith in view of Garcia (U.S. 5,785,484). The rejection is respectfully traversed.

Claims 10 and 11 depend from claim 9 and therefore define patentably over the applied references for at least the reasons presented above with reference to claim 9 since Garcia fails to overcome the deficiencies of the other applied references as noted above.

Claim 12 was rejected under 35 U.S.C. 103(a) as being unpatentable over Grover, Smith and Garcia in view of Dudderar (U.S. 6,205,745). The rejection is respectfully traversed.

Claim 12 depends from claim 10 and therefore defines patentably over the applied references for at least the reasons presented above with reference to claim 9 since Dudderar fails to overcome the deficiencies of the other applied references as noted above.

Claims 13 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Grover and Smith in view of Beyer (U.S. 6,003,676). The rejection is respectfully traversed.

Claims 13 and 14 depend from claim 9 and therefore define patentably over the applied references for at least the reasons presented above with reference to claim 9 since Beyer fails to overcome the deficiencies of the other applied references as noted above.

Claims 15 to 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Grover in view of Smith in view of presumably the same Grover. The rejection is respectfully traversed for reasons stated above with reference to claim 9 from which this claim depends.

Claim 18 was rejected under 35 U.S.C. 103(a) as being unpatentable over Grover and Smith in view of Dudderar. The rejection is respectfully traversed.

Claim 18 depends from claim 9 and therefore define patentably over the applied references for at least the reasons presented above with reference to claim 9 since Dudderar fails to overcome the deficiencies of the other applied references as noted above.

Claim 19 was rejected under 35 U.S.C. 103(a) as being unpatentable over Garcia (U.S. 5,785,484) in view of Dudderar. The rejection is respectfully traversed.

Claim 19 requires, among other features, a flipping station coupled to the loader station, the flipping station to flip substrates held in the substrate tray, the flipping station comprising a plate with a plurality of protrusions, a flipping device with a plurality of vacuum pads coupled to the substrate tray, the flipping device to attach to the substrates, lift the substrates out of the substrate tray, and flip the substrates and a first actuator coupled to the plate, the first actuator to raise and lower the plate. No such structure is taught or even remotely suggested by Garcia. In fact, there is no provision in Garcia whatsoever for flipping a substrate. It follows that the combination with Dudderar is only suggested by the subject disclosure and not by the cited art, even were Dudderar to teach flipping of a substrate of chip, which it does not. The combination is therefore improper.

In addition, a review of Dudderar will reveal that Dudderar does not flip a substrate but rather flips a chip carrier tape. This is an entirely different problem than flipping a substrate and has nothing whatsoever to do with the direct flipping of a substrate or a semiconductor chip.

Claims 20 and 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Garcia in view of Dudderar in view of Dudderar (presumably the same Dudderar). The rejection is respectfully traversed.

Claims 20 and 21 depend from claim 19 and therefore define patentably over the applied references for at least the reasons presented above with reference to claim 19.

In view of the above remarks, favorable reconsideration and allowance are respectfully requested.

Respectfully submitted,



Jay M. Cantor
Attorney for Applicant(s)
Reg. No. 19,906
Texas Instruments Incorporated
P. O. Box 655474, MS 3999
Dallas, Texas 75265
(301) 424-0355 (Phone)
(972) 917-5293 (Phone)
(972) 917-4418 (Fax)